TELECOMMUNICATIONS

2N® MeterCom PRO

Communication Module for Electricity Meters

User Manual

Firmware	1.0.x
Version	1.0.1

www.2n.cz

The 2N TELEKOMUNIKACE a.s. is a Czech manufacturer and supplier of telecommunications equipment.

The product family developed by 2N TELEKOMUNIKACE a.s. includes GSM gateways, private branch exchanges (PBX), and door and lift communicators. 2N TELEKOMUNIKACE a.s. has been ranked among the Czech top companies for years and represented a symbol of stability and prosperity on the telecommunications market for almost two decades. At present, we export our products into over 120 countries worldwide and have exclusive distributors on all continents.

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2N TELEKOMUNIKACE a.s. administers the FAQ database to help you quickly find information and to answer your questions about 2N products and services. On www.faq.2n.cz you can find information regarding products adjustment and instructions for optimum use and procedures „What to do if...".

2N TELEKOMUNIKACE a.s. hereby declares that the 2N® MeterCom PRO product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM (if enclosed) or our website at www.2n.cz.

The 2N TELEKOMUNIKACE a.s. is the holder of the ISO 9001:2009 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee a high quality, technical level and professional aspect of all our products.

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1. Product Overview

In this section, we introduce the **2N® MeterCom PRO** product, outline its application options and highlight the advantages following from its use. The section also includes safety precautions.
Here is what you can find in this section:

- 1.1 Product Description
- 1.2 Upgrade
- 1.3 Terms and Symbols Used

1.1 Product Description

The **2N® MeterCom PRO** communication unit is designed for integration with the **Landis+Gyr E350** e-power meter in an LV 230V 50Hz or 3x230/400V 50Hz electricity distribution network. It works as a GSM / UMTS / Ethernet data transmission element. It includes two outputs (250V / 5A relay NO contact), supports a breaker and offers Wireless M-Bus and RS-485. The Wireless M-Bus interface provides the Multi-Utility function for reading data from external wireless units. The RS-485 interface facilitates interconnection of multiple modules (e-power meters) that share one ETH / GSM / UMTS communication module with one SIM card. **2N® MeterCom PRO** uses the DLMS communication protocol for configuration and data reading. The device memory is accessible via the DLMS protocol for accounting and profile setting purposes. The product cannot be used without an e-power meter.

Safety

- Use **2N® MeterCom PRO** only in a set with a **Landis+Gyr E350** e-power meter to avoid electrical accidents. Never use other power supplies or configurations and never connect the unit to other devices than as instructed in this User Manual.

Safety Precautions

Do not switch on **2N® MeterCom PRO** in the vicinity of medical apparatuses to avoid interference. The minimum distance of the antenna and pacemakers should be 0.5m at least.

Do not switch on **2N® MeterCom PRO** aboard a plane.

Do not switch on **2N® MeterCom PRO** near petrol stations, chemical facilities or sites where explosives are used.

Any mobile telephone use prohibition based on RF energy radiation applies to **2N® MeterCom PRO** too.

2N® MeterCom PRO may disturb the function of TV sets, radio sets and PCs.

Warning! **2N® MeterCom PRO** contains components that can be swallowed by small children (SIM card, antenna, etc.).

Never exceed the voltage value specified on the adapter. Check the available voltage range before connecting **2N® MeterCom PRO** to a different power supply.

When **2N® MeterCom PRO** comes to the end of its operational life, dispose of it in accordance with applicable regulations.

2N® MeterCom PRO is equipped with an external antenna connector. The antenna has to be located indoors for safety reasons.

Warning

- **2N® MeterCom PRO** has a sufficient covering only if integrated with a Landis+Gyr e-power meter – **IP52**. As a stand-alone device, the product has no covering - **IP00!**
- Do not place the unit near heat sources (such as space heaters, hot air heaters, etc.).
- **2N® MeterCom PRO** only works reliably under the conditions specified in this User Manual. Any unauthorised interventions and/or changes in use and operation may result in malfunction or destruction of the product.

1.2 Upgrade

The manufacturer reserves the right to modify **2N® MeterCom PRO** in order to improve its qualities.

Manual Version	Changes in Documentation
1.0.0	**The User Manual corresponds to 2N® MeterCom PRO** FW version **1.0.x**

Caution

- The manufacturer is committed to upgrading the firmware according to the clients' requirements. Refer to the 2N web sites www.2n.cz for the product hardware, GSM / UMTS module and User Manual.
- Refer to the Configuration section for **2N® MeterCom PRO** firmware upgrade details.

1.3 Terms and Symbols Used

Symbols Used

The following symbols and pictograms are used in the manual:

Safety

- **Always abide** by this information to prevent persons from injury.

Warning

- **Always abide** by this information to prevent damage to the device.

Caution

- **Important information** for system functionality.

Tip

- **Useful information** for quick and efficient functionality.

Note

- Routines or advice for efficient use of the device.

```
Plain text, Například: AT příkaz zadávaný do terminálu
```

Future Functions, New Features

The grey-marked text in this document designates the functions and features that are under preparation or development at present.

2. Description and Installation

In this section we describe the **2N® MeterCom PRO** product and its installation. Here is what you can find in this section:

- 2.1 Description
- 2.2 Before You Start
- 2.3 Mounting

2.1 Description

2N® MeterCom PRO consists of a board carrying a power supply connected directly to the power section of the e-power meter via contacting springs. The board is also equipped with a GSM / UMTS / ETH module responsible for continuous Internet connection and server communication via GPRS / UMTS / ETH, and two relays for output contact control. Connectors for optional devices are located in the accessible part of the **2N® MeterCom PRO** device. Refer to the figures below for description. As part of the e-power meter, the plastic case is not included in the **2N® MeterCom PRO** package.

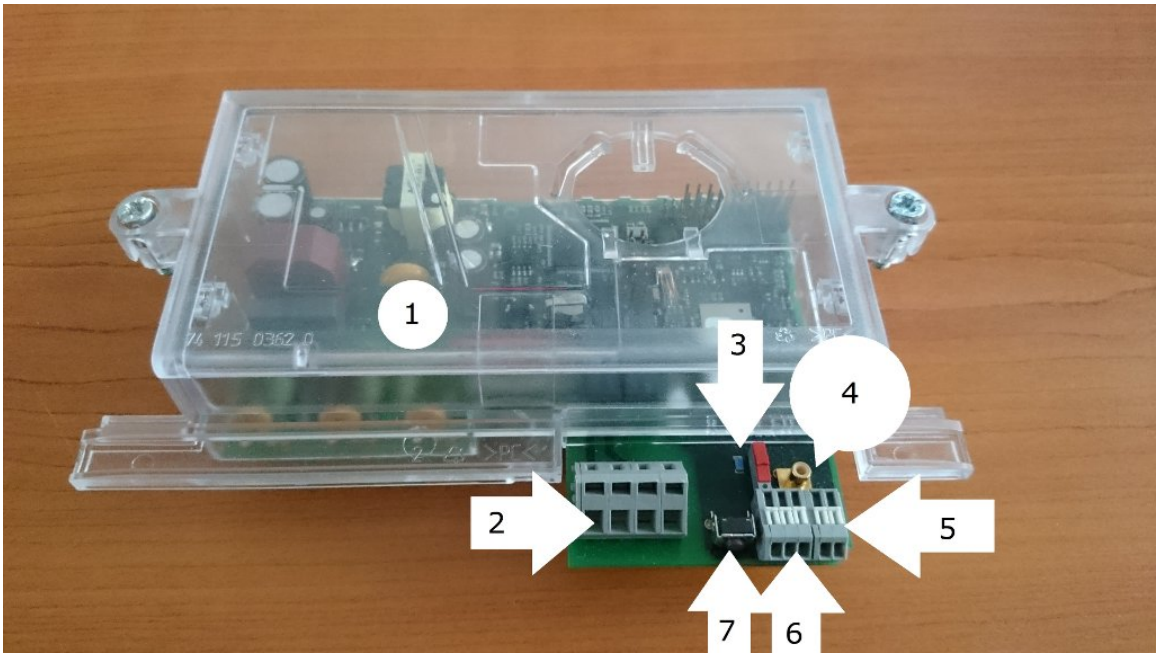

Figure: 2N® MeterCom PRO Description (Top View)

1. Transparent plastic case
2. Relay output terminal board
3. Terminating resistor switch
4. Wireless M-BUS antenna SMB connector
5. E-power meter pulse output connector
6. RS-485 terminal board
7. Breaker manual control button

Safety

- **Never touch the PCB while 2N® MeterCom PRO is switched on!** The PCB includes a power supply and thus produces dangerous voltage of 230 / 400 V.
- If you are a well-trained person authorised by Decree No. 50/78 Coll. to work with **2N® MeterCom PRO** under voltage, be sure to use approved and tested safety working aids only.

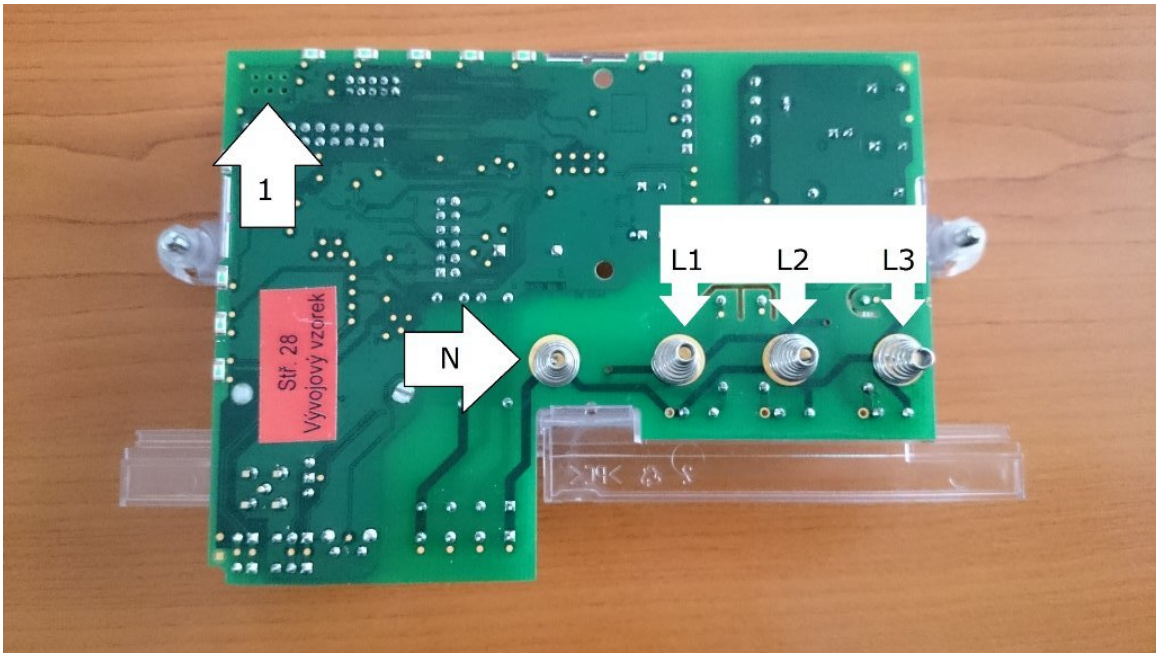

Figure: 2N® MeterCom PRO Connectors (Bottom View)

1. **L+G** e-power meter internal circuit connector

N. Contacting spring for neutral wire connection (**N**)

L1,2,3. Contacting springs for line wire connection (**L**)

2.2 Before You Start

Product Completeness Check

Please check the **2N® MeterCom PRO** delivery before installation:

- **2N® MeterCom PRO** (without a plastic box that is part of the e-power meter)
- QuickStart guide
- paper label including parameters and serial number (to be placed under the meter plastic case)

Installation Conditions

- **2N® MeterCom PRO** is designed for mounting into a FLEX L+G e-power meter thus creating a compact system that is perfectly safe against electrical accidents. Hang the set on a vertical surface with the aid of dedicated openings.
- Install the **2N® MeterCom PRO** GSM antenna with respect to the GSM signal quality in the location – check the SIGNAL LED on **2N® MeterCom PRO** or send an SMS message.
- Install **2N® MeterCom PRO** off sensitive devices and human bodies to avoid EM interference.
- Refer to the Technical Parameters section for the allowed range of working temperatures.
- **2N® MeterCom PRO** may not be operated on sites exposed to direct sunshine or in the vicinity of heat sources.
- **2N® MeterCom PRO** is designed for indoor use. Never expose it to rain, running water, condensation moisture, mist, etc.
- **2N® MeterCom PRO** may not be exposed to aggressive gases, acid vapours, solvents and similar chemicals.

Caution

- Make sure that you are equipped with all necessary technical means, particularly a GPRS supporting SIM card with PIN request disable.

Firmware Versioning

2N® MeterCom PRO uses five-digit versioning (1.2.0.2.0, e.g.). The first three digits are relevant for the customer and the other two digits are reserved for development purposes. Debugging can be activated if necessary by special firmware. The last version number specifies which type of firmware is applied: an odd number means that debugging is allowed and an even number signals that debugging is disabled.

2.3 Mounting

SIM Card Installation

Find the SIM card holder on the top of the **2N® MeterCom PRO** GSM / UMTS level. The GSM / UMTS level is mounted on the motherboard by default. Never disconnect it to avoid pin or device damage due to incorrect replacement.

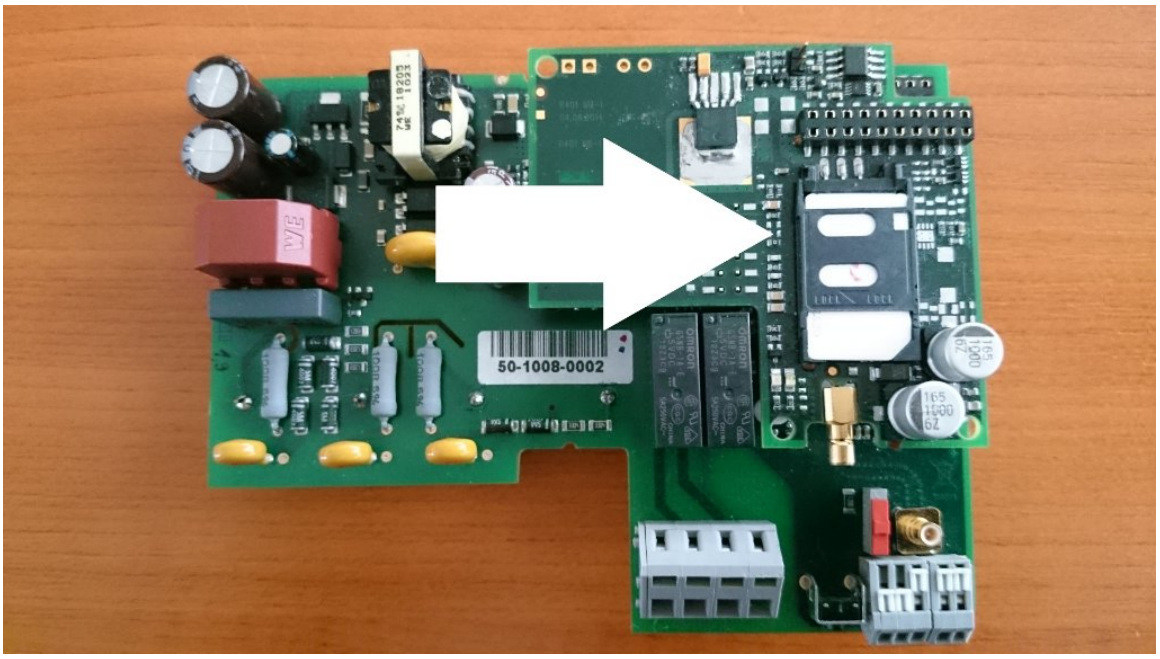

Figure: SIM Card Holder Position

Release the safety pin and lift up the SIM card holder.

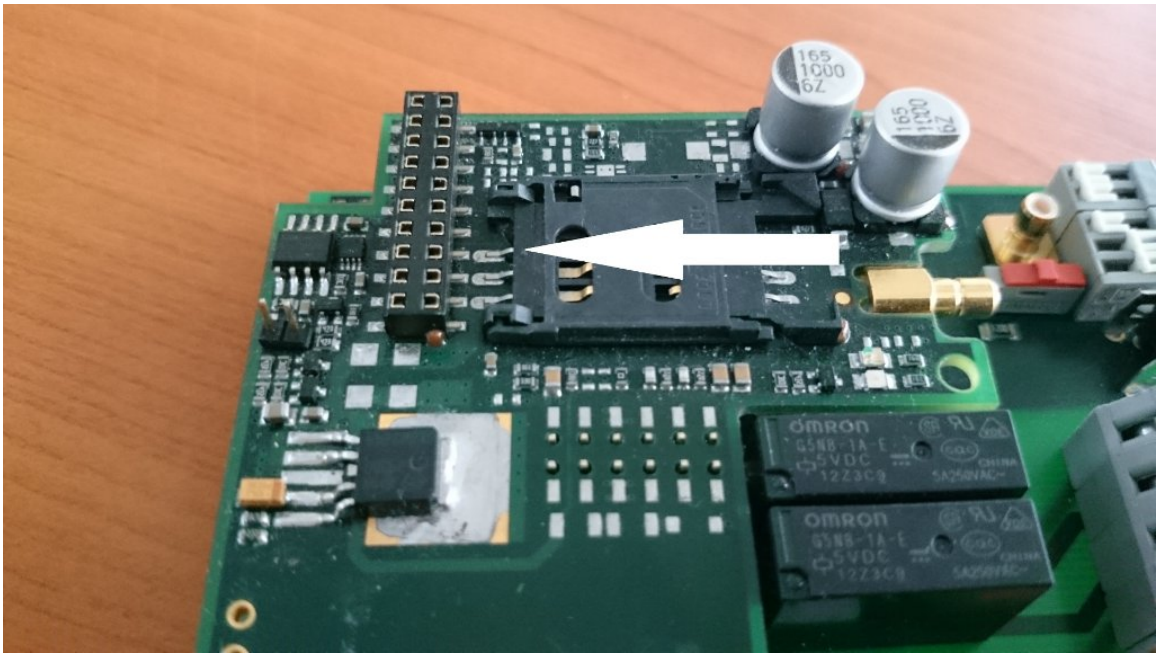

Figure: Safety Pin Release

Insert your SIM card and replace the holder until the safety pin clicks into position.

Figure: SIM Card Insertion

Caution

- Make sure that your GSM provider's SIM card is designed for the GSM network supported by your **2N® MeterCom PRO** version and that GPRS / UMTS data transmission is activated.
- Make sure that your SIM card does not request the PIN.
- Remember to set the relevant SIM and provider services (such as call forwarding, call barring, preferred networks, SMS centre, etc.) via your mobile phone before inserting the SIM card in **2N® MeterCom PRO**.

External GSM Antenna Connection

Insert the antenna connector in the SMB connector on the GSM / UMTS level through the transparent plastic case.

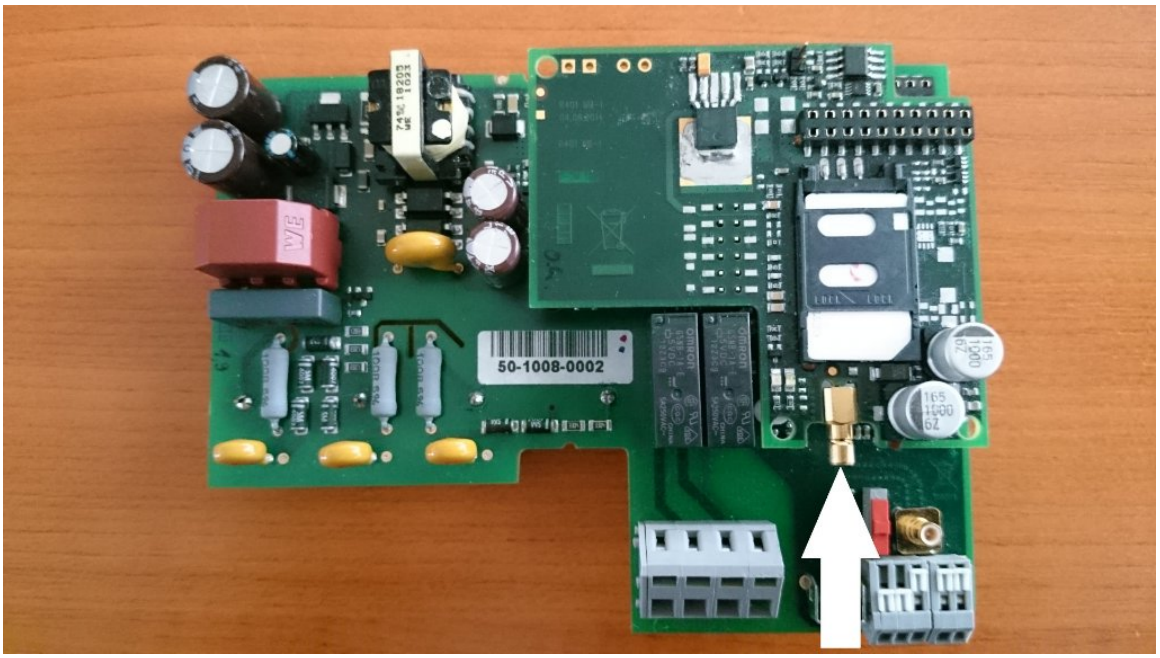

Figure: Antenna Connection

Caution

- Tighten the antenna connector **gently with your hand**; never use a tool!

Note

- The antenna is not part of the **2N® MeterCom PRO** delivery.
- Make sure that the antenna is located in one and the same building with **2N® MeterCom PRO**.

Ethernet Module

2N® MeterCom PRO can be equipped with an optional Ethernet module. See below for description and wire diagram. Mount the Ethernet module on the same place and on both headers as the GSM / UMTS module. However, the left header (when viewed from the top) is only used for connection.

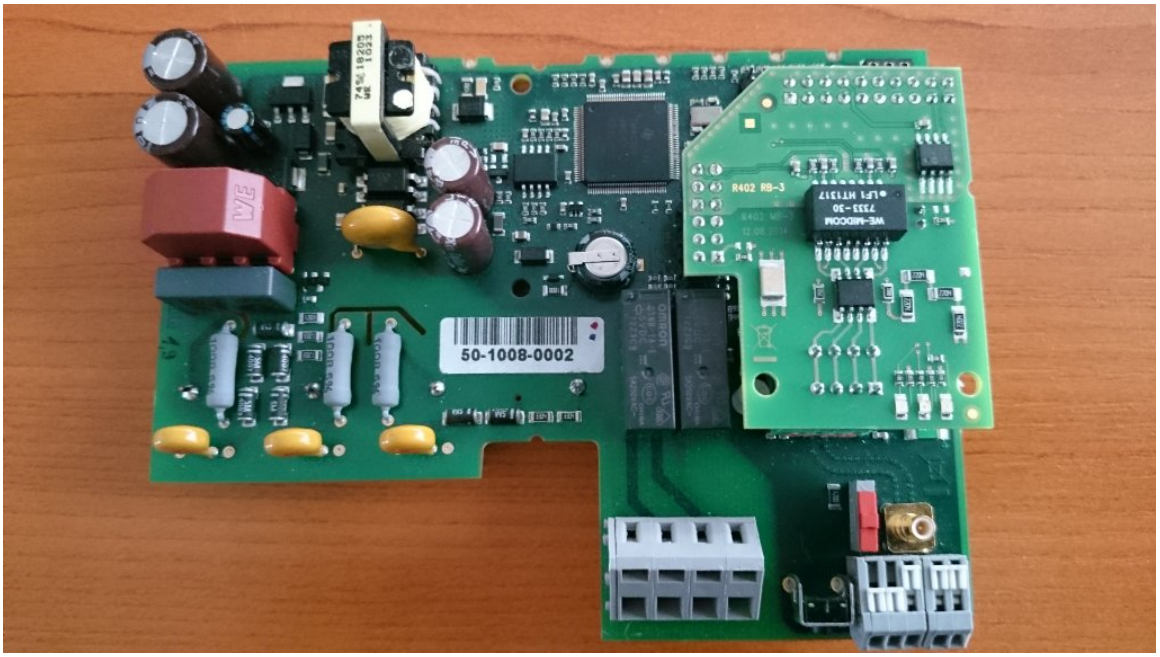

Figure: Ethernet Module

Use a standard four-pair UTP cable for Ethernet module connection. Pairs 2 and 3 are only used (orange, orange-white, green and green-white). Use a WAGO screwless terminal installed on the board for connection. See the figure below for wire configuration.

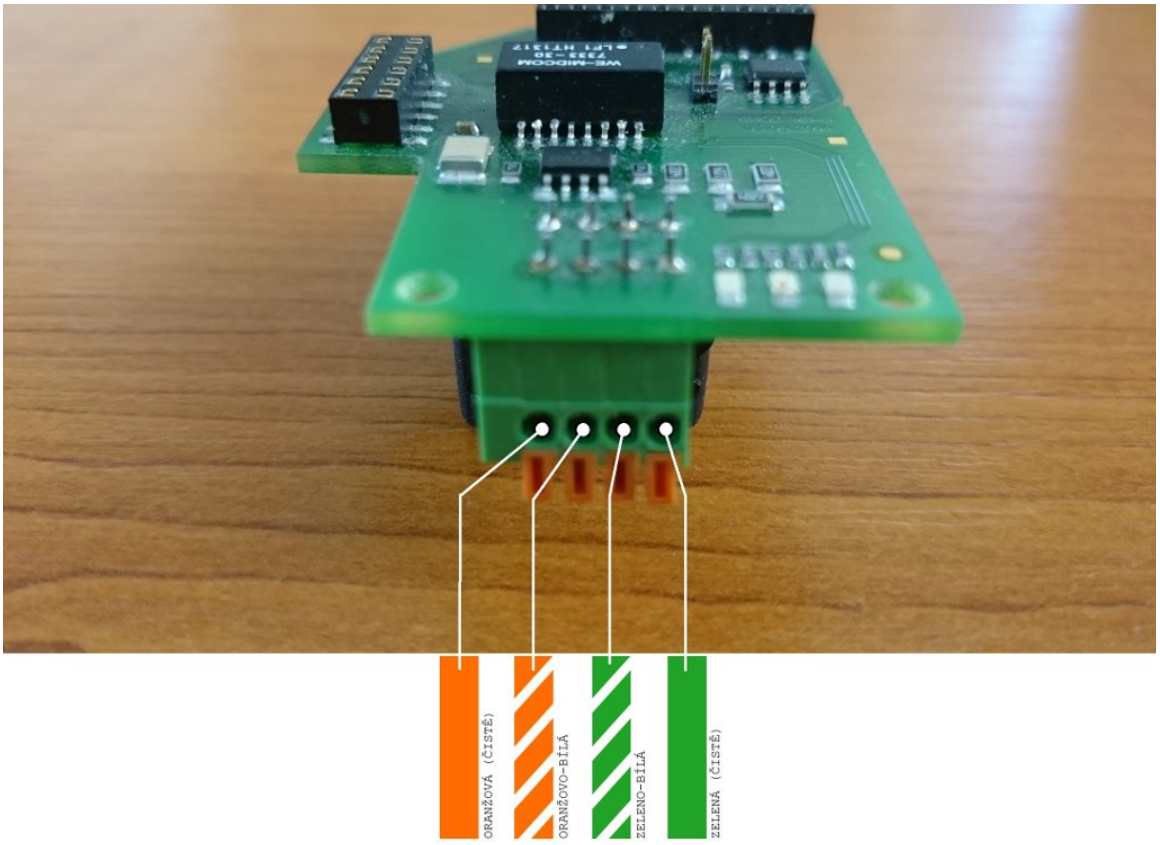

Figure: ETH Cable Connection

External Wireless M-Bus Antenna Connection

Insert the Wireless M-Bus connector in the SMB connector mounted on the motherboard. See the GSM antenna installation instructions.

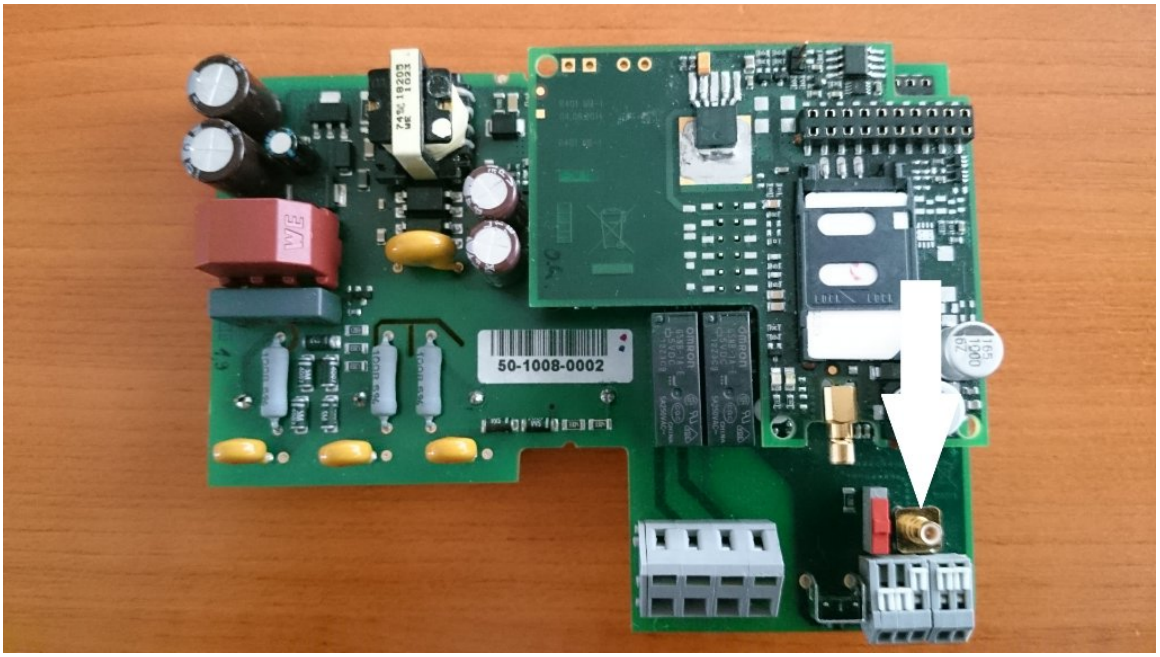

Figure: Wireless M-Bus Antenna Connection

Caution

- Tighten the antenna connector **gently with your hand**; never use a tool!

Note

- The antenna is not part of the **2N® MeterCom PRO** delivery.

Installation inside E-Power Meter

The e-power meter is equipped with a front shaft with a transparent plastic cover fitted by two sealable screws. To install **2N® MeterCom PRO** inside an e-power meter, take off the fibreglass terminal cover first[1]. Then remove the plastic cover[2]. Now the e-power meter is ready for **2N® MeterCom PRO** installation.

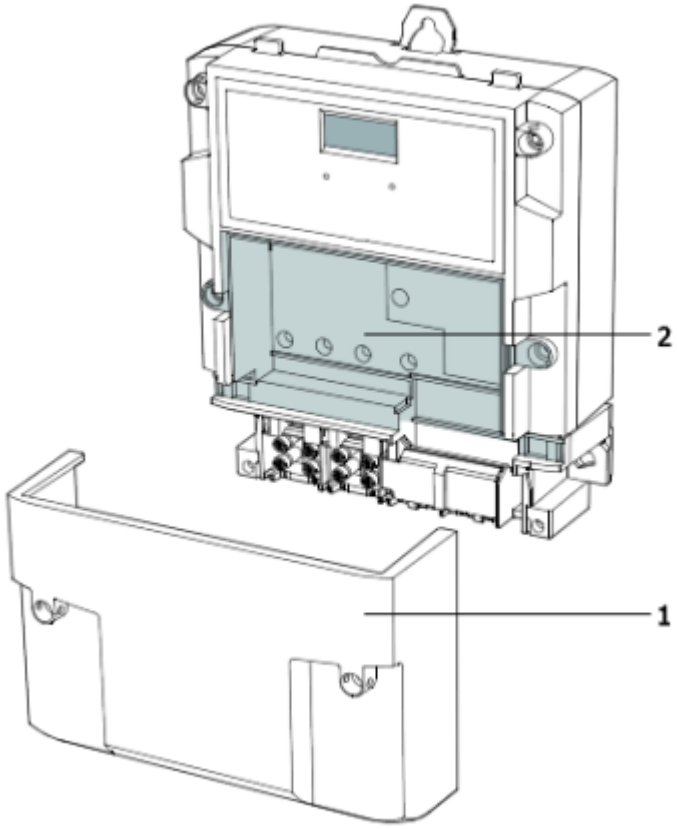

Figure: 2N® MeterCom PRO Installation Preparation

Safety

- **Warning! Live parts become accessible when you remove the meter cover!**
- **Be very careful and never touch the dangerous live parts of the device!**
- **Never work with a switched-on e-power meter with its protective cover off unless you are a well-trained person duly authorised according to Decree No. 50/1978 Coll.**

Now you can start installing. The device is delivered in a mounting box for easy installation. If the cover and PCB are separated, place the cover on the PCB and click the four safety pins into position.

Note

- Make sure before installation that the cover is placed correctly on the PCB.

Safety

- **Never insert the PCB alone in the meter shaft** to avoid problems with touch and water accidents - **IP00**.
- **Never use 2N® MeterCom PRO without its protective cover** to avoid electrical accidents, malfunction due to wrong connections and device damage/loss due to short-circuit or adverse environmental factors.

Warning

- **Make sure before installation that the 2N® MeterCom PRO board is not damaged!**
- Should you suspect that there is an electrical or mechanical damage, never insert the board in the e-power meter to avoid damage or destruction of both **2N® MeterCom PRO** and the e-power meter.

Now we can complete installation by inserting the **2N® MeterCom PRO** module carefully in the e-power meter shaft with the contacting springs towards the meter.

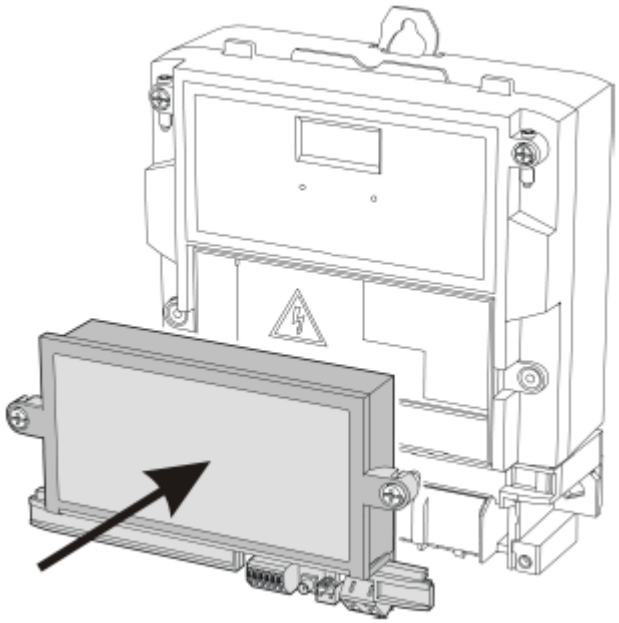

Figure: Installation inside E-Power Meter

The springs click into the power contact holes and the board slides onto the e-power meter internal connector. Push the module inwards properly and tighten the two side screws or use a seal if necessary.

Figure: Internal Connector

Power Supply

2N® MeterCom PRO is AC supplied directly from the 230 / 400V mains. It is not allowed to feed **2N® MeterCom PRO** using a power supply other than the e-power meter supply via contacting springs because of potential module damage.

Caution

- **Do not connect the power supply** until the antenna is connected to **2N® MeterCom PRO** to avoid the GSM module damage.
- **Do not apply a power supply other than the allowed one** to avoid electrical accident or device damage.

3. Function and Use

In this section we describe the basic and extended functions of the **2N® MeterCom PRO** product.
Here is what you can find in this section:

- 3.1 Putting in Operation
- 3.2 LED Indicators
- 3.3 Output Circuits
- 3.4 Bus
- 3.5 Wireless Interfaces

3.1 Putting in Operation

2N® MeterCom PRO is intended for integration with the Landis+Gyr E350 e-power meter in an LV 230V / 400V 50Hz electricity distribution network as an element of GSM / UMTS / ETH data transmission to a superior data concentrator.
Operational state is **2N® MeterCom PRO**'s main function. In this state, periodic data readouts from the e-power meter are made. **2N® MeterCom PRO** responds to queries from a superior data concentrator, executes operations associated with the tariff control and output relay time schedule and sends data to the superior data concentrator. The device has a time base of its own and so all records are provided with a timestamp. This mode allows for social programme introduction or controlled power input limitations.

Connection with the superior server is made both from **2N® MeterCom PRO** and the server. The connection logic is as follows:

- An outgoing call is made to the preset server after **2N® MeterCom PRO** is switched on.
- **2N® MeterCom PRO** waits for a preset timeout before making the next outgoing call.
- If the outgoing connection is unsuccessful, **2N® MeterCom PRO** makes connection attempts until it succeeds. The attempt interval is 5 minutes.
- When there is no active outgoing call or call setup, **2N® MeterCom PRO** receives incoming calls via a preset TCP port.
- An incoming session does not reset the outgoing call counter.
- Communication is terminated by the server. **2N® MeterCom PRO** terminates communication in case no data are transmitted for 5 minutes.

Initialisation

Insert the PIN–disabled data SIM card in the GSM / UMTS module and put the module in the e-power meter as instructed in Subs. 2.3. - Mounting.
When the e-power meter is connected to a 230 / 400 V power supply, all the module LED indicators on the **2N® MeterCom PRO** board will go on for one second. Then they will go out except for the power signalling PWR LED. The GSM / UMTS module will start initialising after a while, which is signalled by illuminated SIM ERR and GSM ERR LEDs. These will go out gradually and the SIGNAL LED will go on to indicate that the module is logged in. In a few seconds, the module will start communicating with the provider and trying to connect to the available server. The CONN LED will start shining to indicate that the module has been successfully connected to the server.

Tip

- **2N® MeterCom PRO** is working if the PWR LED indicating electricity network connection and SIGNAL LED signalling connection to your provider's GSM / UMTS network are constantly shining. Now **2N® MeterCom PRO** is assigned an IP address and can be connected to.

3.2 LED Indicators

Here the variable meanings and statuses of the available LED indicators are described.

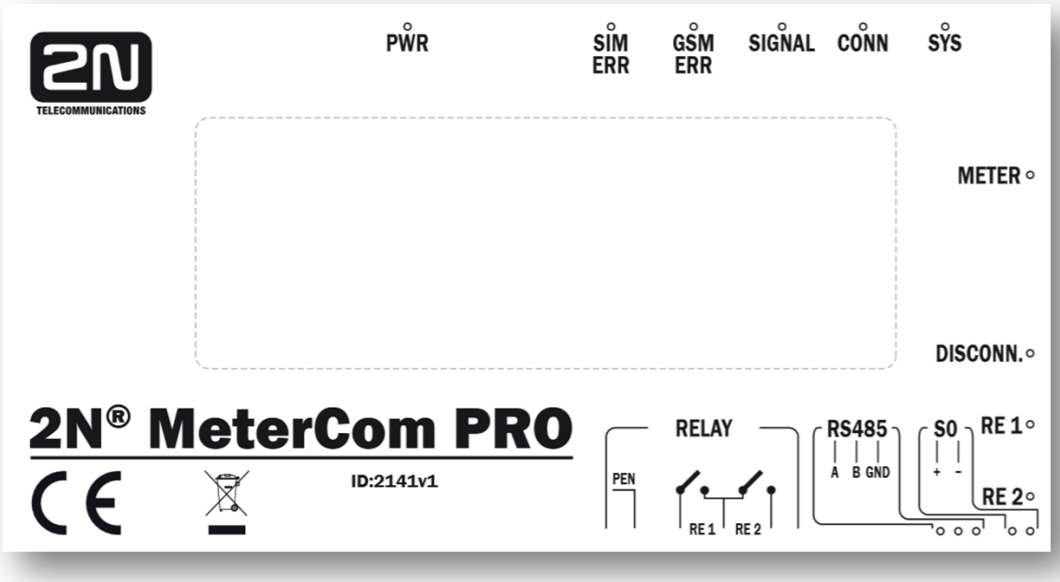

Figure: Front Panel

1. **PWR –** POWER ON – is on while **2N® MeterCom PRO** is switched on.
2. **SIM ERR** – SIM ERROR – indicates the SIM card status.
   - Off – SIM OK.
   - Flashing slowly – signals PIN request or an incorrect PIN.
   - Flashing quickly – indicates the last PIN entering attempt. Insert the SIM card in a mobile phone and enter the PIN manually.
   - On – error, no SIM card.
3. **GSM ERR** – GSM ERROR – indicates the provider registration status.
   - Off – GSM registered OK (domestic network).
   - Flashing slowly – GSM registered OK (active roaming).
   - On – GSM unavailable.
4. **SIGNAL** – SIGNAL LEVEL - indicates the provider connection status.
   - Off – no signal (level < -100dBm).
   - Flashing quickly – low signal level (-100dBm < level <= -90dBm).
   - Flashing slowly – medium signal level (-90dBm < level <= -80dBm).
   - On – high signal level (level > -80dBm).
5. **CONN** – SERVER STAT – indicates active connection of the opponent.
   - Off – no DLMS / RS 485 connection.
   - On and out shortly– DLMS / RS-485 communication in progress.
   - On - active DLMS connection.
6. **SYS** – SYSTEM – indicates the device status.
   - Flashing slowly – firmware upgrade in progress.
   - Flashing quickly – an incoming/outgoing SMS is being processed.
   - Off – normal operational status (no command is being executed).
7. **METER** – METER – indicates communication with the e-power meter.
   - Off – module at relax.
   - On – module - e-power meter communication in progress.

8. **DISCONN** – DISCONNECTOR – indicates the breaker status.
   - Off – connected - breaker inactive.
   - On – disconnected - breaker active.
   - Flashing slowly – ready for reconnection (press the breaker button on the board).
9. **RE 1** – RELAY 1 – signals the status of relay 1.
   - Off – open.
   - On – closed.
10. **RE 2** – RELAY 2 – signals the status of relay 2.
   - Off – open.
   - On – closed.

3.3 Output Circuits

This subsection describes the output circuits of **2N® MeterCom PRO** including their main use, control and board location.

Tip

- **2N® MeterCom PRO** is equipped with reliable screwless terminals for easier and faster connection.

Output Circuits

2N® MeterCom PRO is equipped with two relay outputs for switching on/off electric appliances depending on the power output with the use of a contactor or as signalling cirucits and similar. Keep the prescribed parameters specified in the Technical Parameters section of this User Manual while using the outputs.

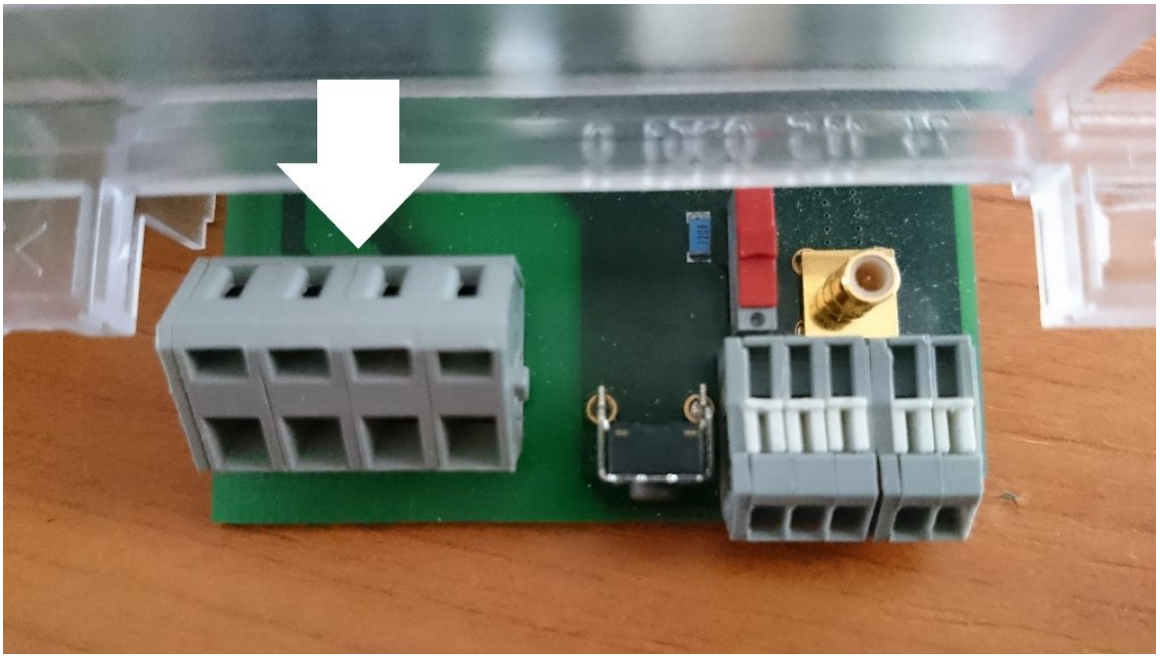

Figure: Output Terminal Board

The terminals are connected as shown in the diagram below. The PEN wire leads to the first terminal from the left and one pole of each relay leads to terminal 3. The remaining relay 1 and 2 poles lead to terminals 2 and 4.

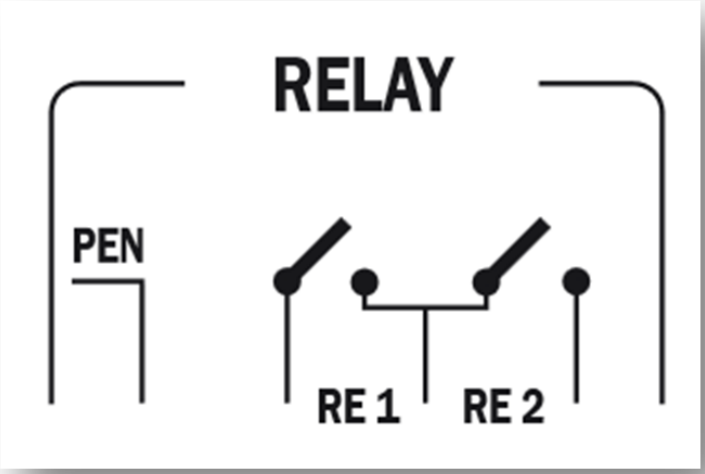

Figure: Output Terminal Board Connection

Caution

- **The PEN wire leading to the output terminal board may not be loaded with more than 2A current!** A higher current value could lead to spring contact overheating and subsequent meter and **2N® MeterCom PRO** damage.

You can control the relay outputs as follows:

- automatically from the preset calendar, or
- using a remote server command.

Breaker Circuits

In general, an e-power meter equipped with an internal power breaker help control power distribution to consumers. The advantages include technical reasons - prevention of accidents - and non-technical solutions - limitation of power supplies to non-paying consumers.

In the **2N® MeterCom PRO** power supply mode, the offtake place can be disconnected from the power network when the preset amount of power is exceeded. The limiter settings meet the DLMS / COSEM specification. The power delivery can be recovered remotely or by pressing the control button as preset.

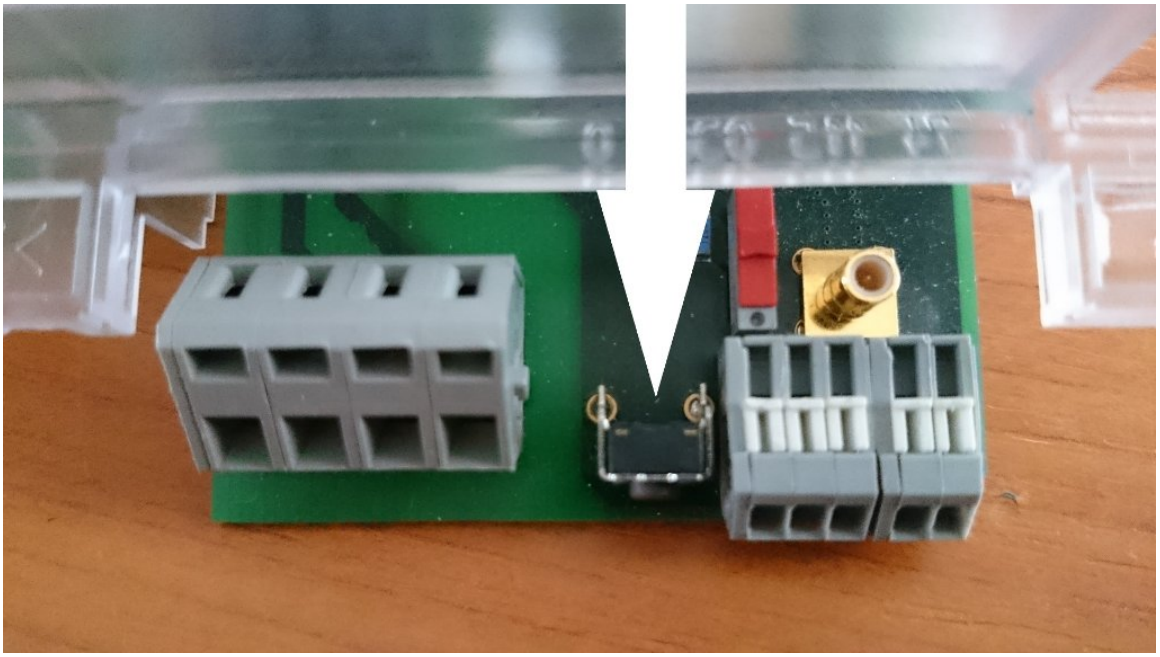

Figure: Breaker Button

3.4 Bus

This subsection describes the bus types of **2N® MeterCom PRO** including their main use, control and board location.

> **Tip**
>
> - **2N® MeterCom PRO** is equipped with reliable screwless terminals for easier and faster connection.

RS-485

2N® MeterCom PRO is equipped with an RS-485 bus for connection of additional meters and use of one access point to the Internet. Up to 31 additional devices can be connected to the bus, which can share a master e-power meter equipped with a GSM / UMTS / ETH level. This approach saves communication module mounting costs. RS-485 in **2N® MeterCom PRO** applies two-wire bus connection with reference ground. See the figure below for the screwless connector configuration.

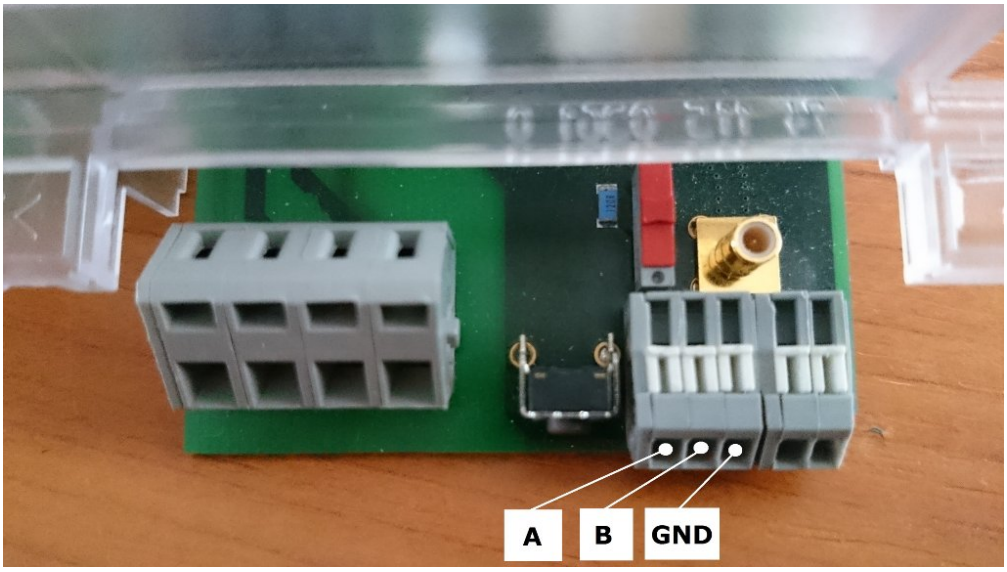

Figure: RS-485 Bus Connection

RS-485 features two-wire unit interconnection. The wires are marked A and B, sometimes '-' and '+'. Wire A (-) should show a lower voltage value than wire B (+) at relax. The maximum bus length is 1200 m and the maximum count of nodes (i.e. devices sending and receiving data via a line) is 32, or even higher if repeaters are used. The maximum bit rate is inversely proportional to the cable length. To allow for communication via long distances, the cables must be terminated with terminating resistors on both sides. The purpose of these 'terminators' is to prevent an rf signal from being reflected back from the end and improve the line resistance against interference. The optimum terminator value is 120 Ω (so-called image impedance) and the resultant line impedance is 60 Ω (120 Ω || 120 Ω). Thus, every **2N® MeterCom PRO** board is equipped with such a terminating resistor, which is provided with a switch and can be activated if necessary. Set the terminating resistor switch to ON for the first and last bus members. See the figure below.

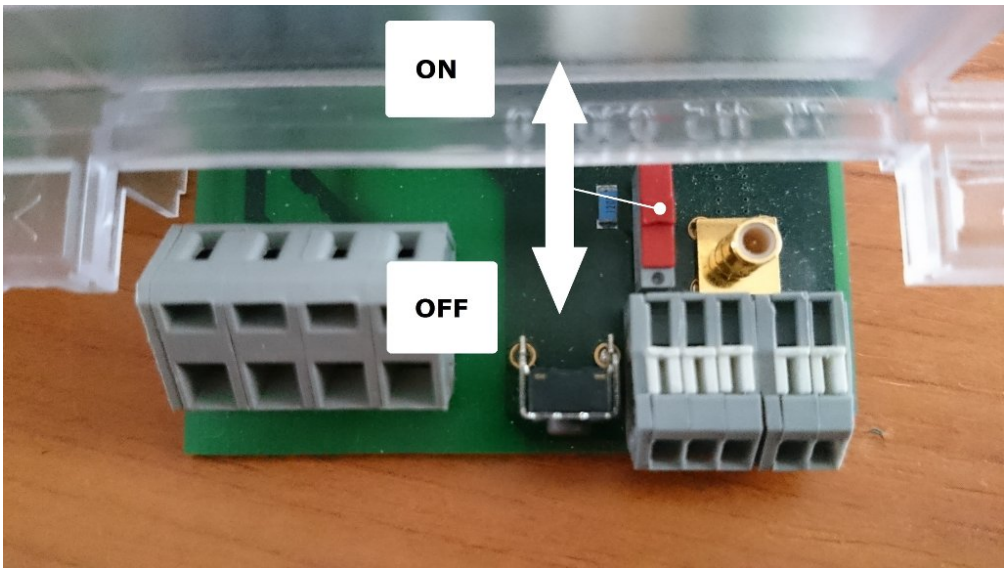

Figure: Terminating Resistor Switch

If multiple e-power meters are connected to one bus, make sure that communication is addressed to the appropriate device. If you do not select the opponent at the beginning, all the devices will answer you at the same time. This is undesirable as the received data will be mixed up and nonsensical. Therefore, make sure that communication takes place between just two devices on the bus. Enter the device address (serial number) to select a device.

Tip

- Use the **2N® MeterCom PRO** or **L+G E350 serial number** as the address.
- Both options can be used for one device and are thus equivalent. Enter 8 or 10 digits:
  - **2N® MeterCom PRO** SN: 5010080020
  - **Landis+Gyr E350** No.: 11620371

Pulse Output S0

There are L+G E350 e-power meter pulse outputs S0 on the **2N® MeterCom PRO** boa rd. These two terminals are just accessible pins of the meter internal connector separated with protective circuits. Refer to Subs. 2.3 for details. The connector is galvanically isolated from the e-power meter. See the figure below for polarity.

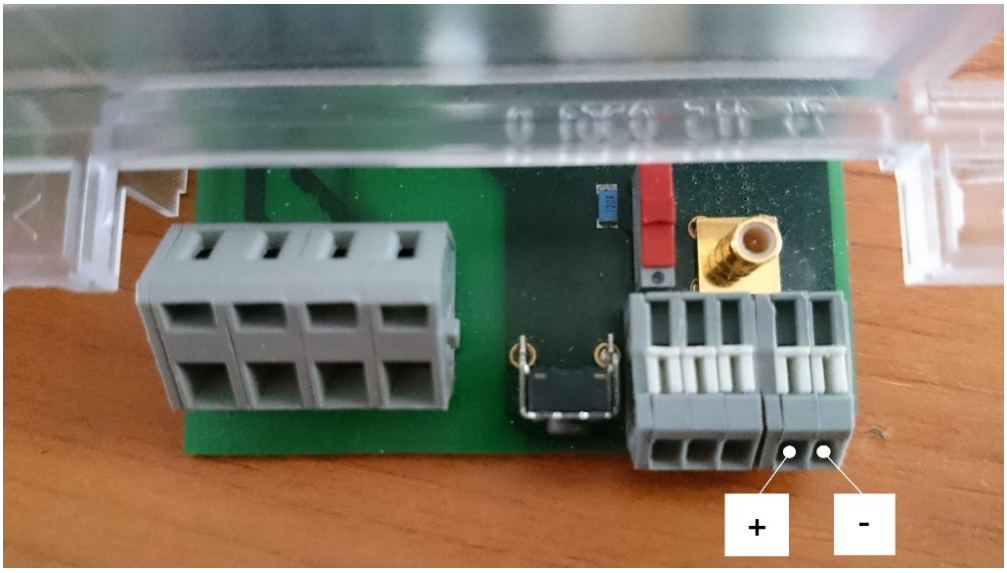

Figure: Pulse Output S0 Polarity

3.5 Wireless Interfaces

This subsection describes the wireless communication interfaces of **2N® MeterCom PRO** including their main use, control and board location.

Wireless M–Bus Interface

Each of the **2N® MeterCom PRO** motherboards is equipped with a module providing wireless communication via the Wireless M-Bus protocol. You can define up to 64 meters for data collection. Having received a WM-bus message from a meter defined in the meter list, **2N® MeterCom PRO** stores the message into the circular buffer in its internal memory. Use selective access to retrieve and delete such data. When the memory is full, the oldest data will be deleted automatically to give space to new records. You can define the minimum reading interval for each meter. No reading coming before the end of this timeout will be saved. You can switch the **2N® MeterCom PRO** WM-bus module into the Client mode to send readings for subsequent processing either outside **2N® MeterCom PRO**, or one **2N® MeterCom PRO** module will read data from the other meters and transmit them to the appropriate data concentrator.

Tip

- Remember to connect an external WM-Bus antenna to make your **2N® MeterCom PRO** work properly. Refer to Subs. 2.3 - Mounting for installation details.

Caution

- The WM-bus parameters may be different depending on the module mounted (radio frequency, e.g.).

External Wireless M-Bus Antenna Connection

Insert the Wireless M-Bus antenna connector in the SMB connector on the motherboard. Follow the GSM antenna installation instructions.

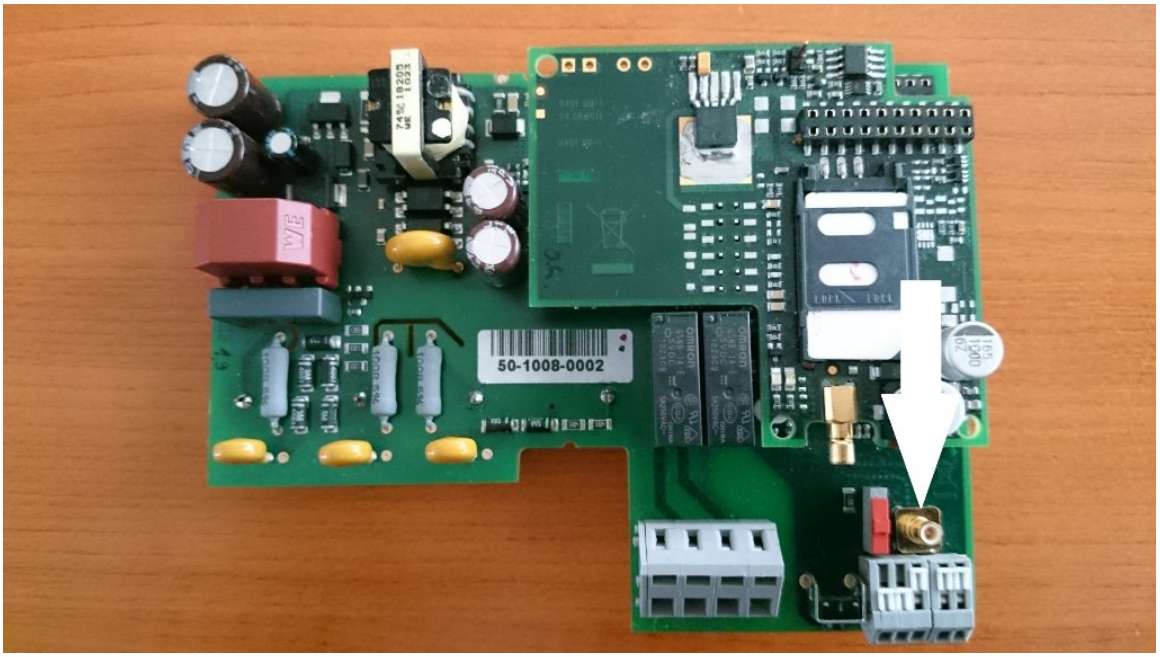

Figure: Wireless M-Bus Antenna Connection

Caution

- Tighten the Wireless M-Bus antenna connector **gently with your hand**; never use a tool!

Note

- The antenna is not part of the **2N® MeterCom PRO** delivery.

4. Configuration

In this section we describe the **2N® MeterCom PRO** configuration.
Here is what you can find in this section:

- 4.1 DLMS
- 4.2 Configuration by SMS

4.1 DLMS

DLMS (**D**evice **L**anguage **M**essage **S**pecification) is a way how to get connected to **2N® MeterCom PRO** and obtain information on its current state, energy delivery readings, calendar and relay settings and/or firmware upgrade.

Note

- Make sure that there is a GPRS / UMTS supporting SIM card, Ethernet interface or RS-485 bus in your **2N® MeterCom PRO** to make DLMS work properly.
- The DLMS protocol is supported by all the above mentioned interfaces.

DLMS / IEC 62056 Control

IEC 62056 is a set of electric power metering and data exchange standards issued by the International Electrotechnical Commission, specifying DLMS / COSEM. DLMS is a set of standards issued and maintained by the DLMS User Association and incorporated into IEC 62056 according to IEC TC13 WG14. **COSEM** (**Co**mpanion **S**pecification for **E**n ergy **M**etering) includes a set of DLMS transport and application layer specifications. The DLMS User Association defines four specification documents: Green Book, Yellow Book, Blue Book and White Book. The Blue Book describes the object model of COSEM meters and identification of OBIS objects. The Green Book describes the architecture and protocols, the Yellow Book deals with compliance testing and the White Book contains a dictionary of terms.

The DLMS server listens on the default TCP port 4059. The server supports a logical reference name with two verification levels. One connection is only allowed, other links are rejected. The table below sums up information on connections in the insecure Public Reader and secure Meter Reader modes.

Client type	Auth. level	Client addr.	Server addr. LOW	Server addr. HI	Password
Public Reader	NONE	0x10	0x00	0x01	---
Meter Reader	LOW	0x20	0x00	0x01	HELLO

Caution

- The default password HELLO is used for the first login. We strongly recommend you to change the password.
- Some versions can have client-modified default passwords.

The list of supported DLMS objects with respective OBIS codes is included in the table below.

OBIS code	Class ID	Description
0.0.42.0.0.255	1	COSEM logical device name
1.0.0.2.0.255	1	Meter firmware ID
1.0.0.2.1.255	1	Configuration ID

1.0.0.2.2.255	1	Active calendar ID
1.0.0.2.7.255	1	Passive calendar ID
1.0.0.2.8.255	1	Meter FW checksum
1.1.0.2.0.255	1	Module firmware ID
0.0.96.1.1.255	1	Meter customer ID - 0.0
0.0.96.1.2.255	1	Meter manufacture ID - C.1.1
0.1.96.1.0.255	1	Module serial number - Read Only
0.1.96.1.1.255	1	Module registration number - Read/Write
0.1.96.90.255.255	1	Module hardware configuration - empty yet
0.0.96.90.255.255	1	Meter configuration ID
0.0.96.90.0.255	1	Meter IEC address
0.0.96.90.1.255	1	Meter IEC address 1 - characters 1-8
0.0.96.90.2.255	1	Meter IEC address 2 - characters 9-16
0.0.96.14.0.255	1	Active rate
0.0.96.14.1.255	1	Relay 1 state
0.0.96.14.2.255	1	Relay 2 state
0.0.96.7.0.255	1	Count of power failures in all three phases
0.0.96.7.1.255	1	Phase fail counter L1
0.0.96.7.2.255	1	Phase fail counter L2
0.0.96.7.3.255	1	Phase fail counter L3
1.0.96.5.0.255	1	Meter internal operating status
1.1.96.5.0.255	1	Module internal operating status
1.0.0.8.0.255	1	*Demand integration period
1.0.0.8.4.255	1	Profile 1 capture period
1.0.0.8.5.255	1	Profile 2 capture period
0.0.44.0.0.255	1	URL for firmware upgrade
0.0.97.97.0.255	1	Meter error code
0.1.97.97.0.255	1	Module error code
1.0.21.7.0.255	3	Active power import L1
1.0.41.7.0.255	3	Active power import L2
1.0.61.7.0.255	3	Active power import L3
1.0.22.7.0.255	3	Active power export L1
1.0.42.7.0.255	3	Active power export L2
1.0.62.7.0.255	3	Active power export L3
1.0.2.7.0.255	3	Active power export
1.0.23.7.0.255	3	Reactive power import L1
1.0.43.7.0.255	3	Reactive power import L2
1.0.63.7.0.255	3	Reactive power import L3
1.0.31.7.0.255	3	Current L1
1.0.51.7.0.255	3	Current L2
1.0.71.7.0.255	3	Current L3
1.0.32.7.0.255	3	Voltage L1
1.0.52.7.0.255	3	Voltage L2
1.0.72.7.0.255	3	Voltage L3
1.0.33.7.0.255	3	Power factor L1
1.0.53.7.0.255	3	Power factor L2
1.0.73.7.0.255	3	Power factor L3
1.0.13.7.0.255	3	Average power factor
1.0.14.7.0.255	3	Mains frequency
1.0.35.7.0.255	3	Active power export L1
1.0.55.7.0.255	3	Active power export L2
1.0.75.7.0.255	3	Active power export L3
1.0.15.7.0.255	3	Active power export

1.0.36.7.0.255	3	Power L1
1.0.56.7.0.255	3	Power L2
1.0.76.7.0.255	3	Power L3
1.0.16.7.0.255	3	Total power
1.0.131.7.0.255	3	Power reactive total
1.0.151.7.0.255	3	Power reactive L1
1.0.171.7.0.255	3	Power reactive L2
1.0.191.7.0.255	3	Power reactive L3
1.0.1.8.0.255	3	Energy import total
1.0.1.8.1.255	3	Energy import rate 1
1.0.1.8.2.255	3	Energy import rate 2
1.0.1.8.3.255	3	Energy import rate 3
1.0.1.8.4.255	3	Energy import rate 4
1.0.1.8.5.255	3	Energy import rate 5
1.0.1.8.6.255	3	Energy import rate 6
1.0.2.8.0.255	3	Energy export total
1.0.2.8.1.255	3	Energy export rate 1
1.0.2.8.2.255	3	Energy export rate 2
1.0.2.8.3.255	3	Energy export rate 3
1.0.2.8.4.255	3	Energy export rate 4
1.0.2.8.5.255	3	Energy export rate 5
1.0.2.8.6.255	3	Energy export rate 6
1.0.3.8.0.255	3	Reactive energy import total
1.0.3.8.1.255	3	Reactive energy import rate 1
1.0.3.8.2.255	3	Reactive energy import rate 2
1.0.3.8.3.255	3	Reactive energy import rate 3
1.0.3.8.4.255	3	Reactive energy import rate 4
1.0.3.8.5.255	3	Reactive energy import rate 5
1.0.3.8.6.255	3	Reactive energy import rate 6
1.0.4.8.0.255	3	Reactive energy export total
1.0.4.8.1.255	3	Reactive energy export rate 1
1.0.4.8.2.255	3	Reactive energy export rate 2
1.0.4.8.3.255	3	Reactive energy export rate 3
1.0.4.8.4.255	3	Reactive energy export rate 4
1.0.4.8.5.255	3	Reactive energy export rate 5
1.0.4.8.6.255	3	Reactive energy export rate 6
1.0.5.8.0.255	3	Reactive energy Q1 total
1.0.5.8.1.255	3	Reactive energy Q1 rate 1
1.0.5.8.2.255	3	Reactive energy Q1 rate 2
1.0.5.8.3.255	3	Reactive energy Q1 rate 3
1.0.5.8.4.255	3	Reactive energy Q1 rate 4
1.0.5.8.5.255	3	Reactive energy Q1 rate 5
1.0.5.8.6.255	3	Reactive energy Q1 rate 6
1.0.6.8.0.255	3	Reactive energy Q2 total
1.0.6.8.1.255	3	Reactive energy Q2 rate 1
1.0.6.8.2.255	3	Reactive energy Q2 rate 2
1.0.6.8.3.255	3	Reactive energy Q2 rate 3
1.0.6.8.4.255	3	Reactive energy Q2 rate 4
1.0.6.8.5.255	3	Reactive energy Q2 rate 5
1.0.6.8.6.255	3	Reactive energy Q2 rate 6
1.0.7.8.0.255	3	Reactive energy Q3 total
1.0.7.8.1.255	3	Reactive energy Q3 rate 1
1.0.7.8.2.255	3	Reactive energy Q3 rate 2
1.0.7.8.3.255	3	Reactive energy Q3 rate 3

1.0.7.8.4.255	3	Reactive energy Q3 rate 4
1.0.7.8.5.255	3	Reactive energy Q3 rate 5
1.0.7.8.6.255	3	Reactive energy Q3 rate 6
1.0.8.8.0.255	3	Reactive energy Q4 total
1.0.8.8.1.255	3	Reactive energy Q4 rate 1
1.0.8.8.2.255	3	Reactive energy Q4 rate 2
1.0.8.8.3.255	3	Reactive energy Q4 rate 3
1.0.8.8.4.255	3	Reactive energy Q4 rate 4
1.0.8.8.5.255	3	Reactive energy Q4 rate 5
1.0.8.8.6.255	3	Reactive energy Q4 rate 6
1.0.9.8.0.255	3	Apparent energy
1.0.9.8.1.255	3	Apparent energy rate 1
1.0.9.8.2.255	3	Apparent energy rate 2
1.0.9.8.3.255	3	Apparent energy rate 3
1.0.9.8.4.255	3	Apparent energy rate 4
1.0.9.8.5.255	3	Apparent energy rate 5
1.0.9.8.6.255	3	Apparent energy rate 6
1.0.15.8.0.255	3	Energy combined total
1.0.15.8.1.255	3	Energy combined rate 1
1.0.15.8.2.255	3	Energy combined rate 2
1.0.15.8.3.255	3	Energy combined rate 3
1.0.15.8.4.255	3	Energy combined rate 4
1.0.15.8.5.255	3	Energy combined rate 5
1.0.15.8.6.255	3	Energy combined rate 6
1.0.16.8.0.255	3	Absolute value of active energy
1.0.16.8.1.255	3	Absolute value of active energy rate 1
1.0.16.8.2.255	3	Absolute value of active energy rate 2
1.0.16.8.3.255	3	Absolute value of active energy rate 3
1.0.16.8.4.255	3	Absolute value of active energy rate 4
1.0.16.8.5.255	3	Absolute value of active energy rate 5
1.0.16.8.6.255	3	Absolute value of active energy rate 6
1.0.21.8.0.255	3	Active import energy phase L1
1.0.21.8.1.255	3	Active import energy phase L1 rate 1
1.0.21.8.2.255	3	Active import energy phase L1 rate 2
1.0.21.8.3.255	3	Active import energy phase L1 rate 3
1.0.21.8.4.255	3	Active import energy phase L1 rate 4
1.0.21.8.5.255	3	Active import energy phase L1 rate 5
1.0.21.8.6.255	3	Active import energy phase L1 rate 6
1.0.41.8.0.255	3	Active import energy phase L2
1.0.41.8.1.255	3	Active import energy phase L2 rate 1
1.0.41.8.2.255	3	Active import energy phase L2 rate 2
1.0.41.8.3.255	3	Active import energy phase L2 rate 3
1.0.41.8.4.255	3	Active import energy phase L2 rate 4
1.0.41.8.5.255	3	Active import energy phase L2 rate 5
1.0.41.8.6.255	3	Active import energy phase L2 rate 6
1.0.61.8.0.255	3	Active import energy phase L3
1.0.61.8.1.255	3	Active import energy phase L3 rate 1
1.0.61.8.2.255	3	Active import energy phase L3 rate 2
1.0.61.8.3.255	3	Active import energy phase L3 rate 3
1.0.61.8.4.255	3	Active import energy phase L3 rate 4
1.0.61.8.5.255	3	Active import energy phase L3 rate 5
1.0.61.8.6.255	3	Active import energy phase L3 rate 6
1.0.22.8.0.255	3	Active export energy phase L1

1.0.22.8.1.255	3	Active export energy phase L1 rate 1
1.0.22.8.2.255	3	Active export energy phase L1 rate 2
1.0.22.8.3.255	3	Active export energy phase L1 rate 3
1.0.22.8.4.255	3	Active export energy phase L1 rate 4
1.0.22.8.5.255	3	Active export energy phase L1 rate 5
1.0.22.8.6.255	3	Active export energy phase L1 rate 6
1.0.42.8.0.255	3	Active export energy phase L2
1.0.42.8.1.255	3	Active export energy phase L2 rate 1
1.0.42.8.2.255	3	Active export energy phase L2 rate 2
1.0.42.8.3.255	3	Active export energy phase L2 rate 3
1.0.42.8.4.255	3	Active export energy phase L2 rate 4
1.0.42.8.5.255	3	Active export energy phase L2 rate 5
1.0.42.8.6.255	3	Active export energy phase L2 rate 6
1.0.62.8.0.255	3	Active export energy phase L3
1.0.62.8.1.255	3	Active export energy phase L3 rate 1
1.0.62.8.2.255	3	Active export energy phase L3 rate 2
1.0.62.8.3.255	3	Active export energy phase L3 rate 3
1.0.62.8.4.255	3	Active export energy phase L3 rate 4
1.0.62.8.5.255	3	Active export energy phase L3 rate 5
1.0.62.8.6.255	3	Active export energy phase L3 rate 6
1.0.128.8.0.255	3	Absolute value of active energy
1.0.128.8.1.255	3	Absolute value of active energy rate 1
1.0.128.8.2.255	3	Absolute value of active energy rate 2
1.0.128.8.3.255	3	Absolute value of active energy rate 3
1.0.128.8.4.255	3	Absolute value of active energy rate 4
1.0.128.8.5.255	3	Absolute value of active energy rate 5
1.0.128.8.6.255	3	Absolute value of active energy rate 6
1.0.130.8.0.255	3	Absolute value of reactive energy
1.0.130.8.1.255	3	Absolute value of reactive energy rate 1
1.0.130.8.2.255	3	Absolute value of reactive energy rate 2
1.0.130.8.3.255	3	Absolute value of reactive energy rate 3
1.0.130.8.4.255	3	Absolute value of reactive energy rate 4
1.0.130.8.5.255	3	Absolute value of reactive energy rate 5
1.0.130.8.6.255	3	Absolute value of reactive energy rate 6
1.0.131.8.0.255	3	Absolute value of reactive energy
1.0.131.8.1.255	3	Absolute value of reactive energy rate 1
1.0.131.8.2.255	3	Absolute value of reactive energy rate 2
1.0.131.8.3.255	3	Absolute value of reactive energy rate 3
1.0.131.8.4.255	3	Absolute value of reactive energy rate 4
1.0.131.8.5.255	3	Absolute value of reactive energy rate 5
1.0.131.8.6.255	3	Absolute value of reactive energy rate 6
1.0.132.8.0.255	3	Reactive import energy
1.0.132.8.1.255	3	Reactive import energy rate 1
1.0.132.8.2.255	3	Reactive import energy rate 2
1.0.132.8.3.255	3	Reactive import energy rate 3
1.0.132.8.4.255	3	Reactive import energy rate 4
1.0.132.8.5.255	3	Reactive import energy rate 5
1.0.132.8.6.255	3	Reactive import energy rate 6
1.0.133.8.0.255	3	Reactive export energy
1.0.133.8.1.255	3	Reactive export energy rate 1
1.0.133.8.2.255	3	Reactive export energy rate 2
1.0.133.8.3.255	3	Reactive export energy rate 3
1.0.133.8.4.255	3	Reactive export energy rate 4
1.0.133.8.5.255	3	Reactive export energy rate 5

1.0.133.8.6.255	3	Reactive export energy rate 6
1.0.82.8.1.255	3	Terminal cover remove count
1.0.82.8.2.255	3	DC field detection count
1.0.82.8.3.255	3	Disconnector tamper counter
1.0.1.14.0.255	5	Sliding average total import power
1.0.99.98.0.255	7	Event log 1 - critical states and attacks
1.0.99.98.1.255	7	Event log 2 - calendar actions
1.0.99.98.2.255	7	Event log 3 - blackouts and voltage problems
1.0.99.98.3.255	7	Event log 4 - module internal states
1.0.99.98.4.255	7	Event log 5 - direct commands
1.0.99.98.5.255	7	Event log 6 - limiter
1.0.99.98.6.255	7	Debug log - 2N debugging log
1.0.99.1.0.255	7	Periodic readout - profile 1
1.0.99.2.0.255	7	Periodic readout - profile 2
1.0.99.3.0.255	7	Periodic readout - daily
1.0.99.4.0.255	7	Periodic readout - monthly
0.0.1.0.0.255	8	Clock
0.0.40.0.0.255	15	LN associations
0.0.40.0.1.255	15	LN associations public client
0.0.40.0.2.255	15	LN associations meter reader
0.0.40.0.3.255	15	LN associations utility setting
0.0.41.0.0.255	17	SAP assignment
0.0.13.0.0.255	20	Activity calendar
0.0.16.0.0.255	21	Voltage L1 register monitor
0.0.16.0.1.255	21	Voltage L2 register monitor
0.0.16.0.2.255	21	Voltage L3 register monitor
0.0.11.0.0.255	11	Special days table definition
0.0.25.0.0.255	41	TCP setup
0.0.25.1.0.255	42	IPv4 setup
0.0.25.2.0.255	43	MAC setup
0.0.25.3.0.255	44	PPP setup
0.0.25.4.0.255	45	GPRS modem setup
0.0.25.6.0.255	47	GSM diagnostic
0.0.96.3.10.255	70	Disconnector control interface
0.0.10.0.100.255	9	Tariffication script table
0.0.10.0.103.255	9	Output signals (RELAY) script table
0.0.10.0.106.255	9	Disconnector control script table
0.0.10.0.101.255	9	2N complex script table
0.0.16.2.0.255	65	Profile 1 parameters definition
0.0.16.2.1.255	65	Profile 2 parameters definition
0.0.22.0.0.255	23	HDLC setup
0.0.129.0.0.255	8193	Relay 1 configuration
0.0.129.0.1.255	8193	Relay 2 configuration
0.0.129.0.2.255	8194	Tariffication rate configuration
0.0.129.0.3.255	8195	TCP connection configuration in Client mode
0.0.129.0.4.255	8196	MCP configuration
0.0.128.0.0.255	8192	Wireless M-Bus object
0.0.17.0.0.255	71	Current L1 limiter for immediate disconnection
0.0.17.0.1.255	71	Current L1 limiter for disconnection with hysteresis
0.0.17.0.2.255	71	Current L2 limiter for immediate disconnection
0.0.17.0.3.255	71	Current L2 limiter for disconnection with hysteresis
0.0.17.0.4.255	71	Current L3 limiter for immediate disconnection

0.0.17.0.5.255	71	Current L3 limiter for disconnection with hysteresis
0.0.17.0.6.255	71	Energy limiter for immediate disconnection
0.0.17.0.7.255	71	Energy limiter for disconnection with hysteresis
0.0.17.0.8.255	71	Power limiter for immediate disconnection
0.0.17.0.9.255	71	Power limiter for disconnection with hysteresis

Refer to the official documents (Green/Blue/Yellow/White Books) for more DLMS / COSEM details. Refer to the **2N® MeterCom PRO Reference Manual** for protocol implementation to **2N® MeterCom PRO**. Please contact the 2N TELEKOMUNIKACE a.s. Technical Support at support@2n.cz.

4.2 Configuration by SMS

2N® MeterCom PRO with an installed GSM / UMTS level allows for communication via SMS messages. SMS messages are used for basic settings. You have to know the telephone number of the SIM card inserted in your **2N® MeterCom PRO** to ensure a reliable function. You can configure the basic network communication parameters of the GSM / UMTS connection and get status info and/or perform device reset via SMS. SMS communication is protected with a password, which is identical with the DLMS password. Every SMS message consists of three parts: initial string, command and command parameters.

Caution

- Every SMS to be sent to **2N® MeterCom PRO** must meet all the conditions mentioned below. If not, the SMS will be ignored and no changes will be made. An error message will be sent to the SMS sending number.

Function Description

2N® MeterCom PRO can be configured by SMS messages. Send an SMS to the terminal SIM card number. Remember to enter all of the mandatory parameters correctly to avoid SMS processing failure and error reply.

Every configuration SMS must meet the following conditions:

- Name of device - MCP.
- Correctly formatted command (INFO, CNF, etc.).
- Authorisation password.
- Correctly defined parameters (refer to command parameters).
- Upper/Lower Case must be respected.
- Parameters must be separated with a space.
- 7–bit SMS format (no diacritic symbols).
- Maximum length of 160 characters (which is one SMS, concatenated SMS are not supported).

Note

- **The maximum SMS length is 160 characters.** This is a GSM standard, which allows 1120 bits, i.e. 140 bytes, per SMS. Since 7–bit encoding is used by default, 20 characters are saved per 140 bytes and so the resultant length is 160 characters. The GSM 03.38 character set is applied. UCS–2 16–bit encoding is used for the characters that are not included in the ASCII standard (characters with diacritics). In that case, the SMS contains only 70 characters. **Not supporting the UCS–2 character set, 2N® MeterCom PRO cannot process such SMS correctly and marks them as errors**.
- Modern GSM devices support SMS concatenating where several standard SMS are merged into a long one. Information on each fragment of the long SMS is written into the User Data Header (UDH) and so no fragment may be longer than 153 chars in 7–bit encoding. **Not supporting the UDH encoding system, 2N® MeterCom PRO cannot process such SMS correctly and marks them as errors**.

Information SMS

Send the following INFO SMS to identify the signal level, serial number, firmware version and other parameters of your **2N® MeterCom PRO**:

```
MCP INFO PWD=HELLO
```

Separate each message part with a space: header (MCP), command (INFO) and password (PWD=xxxxx). The reply to such SMS, for example, looks as follows:

```
EM_ID=11620371 SN=50-1008-0004 SIG=-57dBm LIP=89.24.0.201 STAT=GSM TECH=GPRS
```

The meanings of the parameters in the reply SMS are as follows:

- **EM_ID –** e-power meter ID.
- **SN – 2N® MeterCom PRO** serial number.
- **SIG –** current GSM / UMTS module signal level.
- **LIP – 2N® MeterCom PRO** IP address in the mobile network.
- **STAT -** current DLMS connection state. Options:
  - LISTEN
  - GSM
  - OPTO
  - 485
- **TECH –** selected registration technology. Options:
  - GPRS
  - UMTS

Configuration SMS

If an SMS is received, processed and executed correctly, the module will be reconfigured. A configuration SMS must have the proper format and the commands must be separated with a space. If any of the parameters contains a space, it must be closed in brackets. The configuration SMS is protected with an access password, which is included as a PWD command parameter. **HELLO** is the default value.
Use the configuration SMS to set the following parameters:

- **APN –** name of the provider's access point.
- **DUSR –** user name for provider connection.
- **DPWD –** password for provider connection.
- **IP –** IP address of the server to which **2N® MeterCom PRO** gets connected.
- **PORT –** number of the remote TCP port for outgoing connection to the server and number of the local TCP port for incoming sessions.
- **NPWD –** new access password.
- **RINT –** outgoing call intervals to the server. Options:
  - **1-24** – interval in hours
  - **0** – disabled

Note

- Enter the direct IP address of the server to which the module shall connect in the IP parameter. The domain name cannot be used.

To change the default values, send the following SMS to the number of the SIM card inserted in **2N® MeterCom PRO**:

```
MCP CNF PWD=HELLO APN=<new apn> DUSR=<new username> DPWD=<new password> IP=<new
IP address> PORT=<new port number> NPWD=<new password> RINT=<interval in hours>
```

Tip

- Not all access data have to be included. For example, send only the following SMS: MCP CNF PWD=<password> APN=<new apn> to change the APN.

When new parameters have been set, **2N® MeterCom PRO** will send the following SMS message to the configuration SMS sending number:

```
APN=internet.t-mobile.cz DUSR=internet DPWD= IP=10.0.25.30 PORT=58600 RINT=2
```

Caution

- Some providers do not request the user name and password and so these parameters may be empty. Ask your provider whether it is necessary to enter the user name and password to get access to the Internet.

Device Restart

You can also use an SMS to restart your **2N® MeterCom PRO**:

```
MCP RESET PWD=HELLO
```

Caution

- The command execution takes about 30 s. Then **2N® MeterCom PRO** is restarted.

2N® MeterCom PRO sends a confirmation SMS (**OK**) before restarting.

Error Replies

2N® MeterCom PRO sends an error reply to notify you of any configuration sending/processing error. If such a reply is generated, the command has not been executed!

2N® MeterCom PRO sends error replies until all the configuration SMS parameters are OK.
The following errors are available:

Unknown command – unknown command. CNF, RESET and INFO are only allowed.

Password missing – the command is correct, but the password string is missing or invalid.

Password incorrect – the command is correct, but the password is invalid.

Too many parameters – the received SMS has a valid format, but includes too many parameters.

Unknown parameter – the received SMS has a valid format, but a command is unknown.

Parameter value incorrect – the received SMS has a valid format, but a parameter is beyond the limit.

5. Maintenance

This section describes how to maintain the **2N® MeterCom PRO** product.
Here is what you can find in this section:

- 5.1 Repairs
- 5.2 Firmware Upgrade
- 5.3 Battery Maintenance

5.1 Repairs

Should you need some service interventions, please contact the 2N TELEKOMUNIKACE a.s. Technical Support staff via e-mail: techsupport@2n.cz or tel.: (+420)900300300.
2N® MeterCOM PRO repairs may be made by an authorised servicing centre or the manufacturer only.

5.2 Firmware Upgrade

The factory default firmware in **2N® MeterCom PRO** can be upgraded. Contact the 2N TELEKOMUNIKACE a.s. Technical Support for information on new functions and firmware versions at support@2n.cz.

To upgrade the **2N® MeterCom PRO** firmware, use DLMS, open the **URL for rmware upgrade** and use the OBIS code **0.0.44.0.0.255.** Enter the URL into parameter 2 where a new firmware file is available.

Tip

- **For example, URL can have the following format: „** http://194.134.27.147:95/metercom_pro_fw/upgrade.bin"

Caution

- **Make sure that the web server providing the new FW file supports the HTTP version 1.1!** Lower HTTP versions are not supported.

Having received the command, **2N® MeterCom PRO** will connect to the server and download the new firmware. Then **2N® MeterCom PRO** will get restarted automatically

Tip

- Check the **Module firmware version** object with the OBIS code **0.0.96.1.5.255** to make sure that the firmware upgrade has been executed successfully.

5.3 Battery Maintenance

2N® MeterCom PRO is equipped with a maintenance-free super-capacitor for RTC back-up. **2N® MeterCom PRO** has no other back-up supply. This means that the relay contacts are released and the RAM is cleared at power outage.

6. Technical Parameters

This section provides a list of **2N® MeterCom PRO** technical parameters.

- 6.1 Technical Parameters

6.1 Technical Parameters

Power Supply

Voltage	230 V +10% -20%, 50 Hz
Connector	Contacting springs for L+G Zxx100AC e-power meter supply
Power input	Up to 6 W
Real Time Clock back-up	1F super-capacitor

GSM / UMTS

Module type	Telit HE-910, GE-910
Mobile network type	GSM 850, 900, 1800, 1900 MHz
	UMTS 800, 850, 900, 2100 MHz
GSM	Telit GE-910 (EU,QUAD)
UMTS	Telit HE-910 EUR
SIM card	Plug-in 3 V / 1 V8 (small)
Transmission power	2 W (1 W)
Antenna	one external antenna, SMB connector
Receiver sensitivity	-108 dBm

Antenna

Frequency	850/900/1800/1900 MHz
Impedance	50 Ω
Maximum power	2 W
Antenna connector type	SMB

Relays (Two)

Maximum voltage	250 V AC, 30 V DC
Maximum current	3 A
Minimum electric life	$2x10^5$ switchings
Minimum mechanical life	$5x10^6$ switchings

RS-485

Connector	1.5 mm^2 wire terminal board
Count of devices	up to 32
Terminating impedance	120 Ω

Wireless M-Bus

Frequency	868 ≈ 870 MHz

Working Conditions

Temperature	-40°C ≈ 70°C
Relative humidity	0 ≈ 80%

Others

Dimensions (w/o connectors)	125 x 92 x 45 mm PCB of L shape
Overvoltage category	III (ČSN EN 60950-1)
CE certification	

7. Supplementary Information

This section provides supplementary information on **2N® MeterCOM PRO**.
Here is what you can find in this section:

- 7.1 List of Abbreviations
- 7.2 Regulations, Laws and Directives
- 7.3 General Instructions and Cautions

7.1 List of Abbreviations

- **APN** (Access Point Name) - name of GPRS access point.
- **CSD (**Circuit Switched Data) - circuit switched data transmission.
- **GSM** (Group Switched Mobile system) - current standard for mobile telephone systems.
- **GPRS (**General Packet Radio Service) - high-speed packet oriented mobile data service.
- **HW** (Hardware) - for this purpose, hardware means an electronic device, circuit, board, component, etc.
- **PIN** (Personal Identification Number) - SIM card protecting code against unauthorised use.
- **PUK** (Personal Unblocking Key) - SIM card unblocking code after repeated wrong PIN entering attempts.
- **SIM** (Subscriber Identity Module) - chip module for GSM identification.
- **SMS (**Short Message Service) - transmission of short text messages via GSM, the abbreviation is used for messages too.
- **SW** (Software) - software.
- **IMSI** (International Mobile Subscriber Identity) - a unique ID assigned by the provider to a SIM card in a mobile network.
- **IMEI (**International Mobile Equipment Identity) - a unique ID assigned by the provider to a mobile phone or another mobile device (module, e.g.).
- **EMID** (Electric Meter ID) - e-power meter ID.

7.2 Regulations, Laws and Directives

The PRODUCT conforms to the following acts, directives and regulations:

- Act No. 22/1997 Coll. of January 24, 1997 on technical requirements of products and amendments to some laws
- Directive 1999/5/EC of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity
- Governmental Regulation No. 426/2000 Coll. on technical requirements of radio and telecommunications terminal equipment
- Directive 2006/95/EC of the Council of 16 January 2007 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
- Governmental Regulation No. 17/2003 Coll. on technical requirements of low voltage electrical equipment
- Governmental Regulation No. 18/2003 Coll. on technical requirements of products in terms of electromagnetic compatibility
- Directive 2004/108/EC of the Council of 15 December 2004 on the harmonisation of the laws of Member States relating to electromagnetic compatibility
- Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
- Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment

7.3 General Instructions and Cautions

Please read this User Manual carefully before using the product. Follow all instructions and recommendations included herein.

Any use of the product that is in contradiction with the instructions provided herein may result in malfunction, damage or destruction of the product.

The manufacturer shall not be liable and responsible for any damage incurred as a result of a use of the product other than that included herein, namely undue application and disobedience of the recommendations and warnings in contradiction herewith.

Any use or connection of the product other than those included herein shall be considered undue and the manufacturer shall not be liable for any consequences arisen as a result of such misconduct.

Moreover, the manufacturer shall not be liable for any damage or destruction of the product incurred as a result of misplacement, incompetent installation and/or undue operation and use of the product in contradiction herewith.

The manufacturer assumes no responsibility for any malfunction, damage or destruction of the product caused by incompetent replacement of parts or due to the use of reproduction parts or components.

The manufacturer shall not be liable and responsible for any loss or damage incurred as a result of a natural disaster or any other unfavourable natural condition.

The manufacturer shall not be held liable for any damage of the product arising during the shipping thereof.

The manufacturer shall not make any warrant with regard to data loss or damage.

The manufacturer shall not be liable and responsible for any direct or indirect damage incurred as a result of a use of the product in contradiction herewith or a failure of the product due to a use in contradiction herewith.

All applicable legal regulations concerning the product installation and use as well as provisions of technical standards on electric installations have to be obeyed. The manufacturer shall not be liable and responsible for damage or destruction of the product or damage incurred by the consumer in case the product is used and handled contrary to the said regulations and provisions.

The consumer shall, at its own expense, obtain software protection of the product. The manufacturer shall not be held liable and responsible for any damage incurred as a result of the use of deficient or substandard security software.

The consumer shall, without delay, change the access password for the product after installation. The manufacturer shall not be held liable or responsible for any damage incurred by the consumer in connection with the use of the original password.

The manufacturer also assumes no responsibility for additional costs incurred by the consumer as a result of making calls using a line with an increased tariff.

Electric Waste and Used Battery Pack Handling

Do not place used electric devices and battery packs into municipal waste containers. An undue disposal thereof might impair the environment!

Deliver your expired electric appliances and battery packs removed from them to dedicated dumpsites or containers or give them back to the dealer or manufacturer for environmental-friendly disposal. The dealer or manufacturer shall take the product back free of charge and without requiring another purchase. Make sure that the devices to be disposed of are complete.

Do not throw battery packs into fire. Battery packs may not be taken into parts or short-circuited either.

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